WHAT IS CLAIMED IS:

1.   For use in a channel decoder, a hybrid frequency-time domain equalizer for improved static and multi-path performance over a decision feedback equalizer comprising:

    a frequency domain equalizer having forward and feedback paths; and

    a decision feedback equalizer decision network within said feedback path of said frequency domain equalizer, said frequency domain equalizer and said decision feedback equalizer decision network both employing a single error vector to update error correction therein.

2.   The hybrid frequency-time domain equalizer as set forth in Claim 1 wherein said decision feedback equalizer decision network further comprises a decision device within said feedback path for said frequency domain equalizer.

3.   The hybrid frequency-time domain equalizer as set forth in Claim 2 wherein said decision device employs trellis decisions to minimize decoding error.

1   4.   The hybrid frequency-time domain equalizer as set

2   forth in Claim 1 wherein said decision feedback equalizer

3   decision network further comprises a time domain feedback

4   filter within said feedback path for said frequency domain

5   equalizer.

1   5.   The hybrid frequency-time domain equalizer as set

2   forth in Claim 1 wherein taps updates for said decision

3   feedback equalizer decision network are separate from tap

4   updates for said frequency domain equalizer.

1   6.   A receiver comprising:

2   an input receiving single carrier digital

3   signals; and

4   a channel decoder employing a hybrid frequency-

5   time domain equalizer for improved static and multi-path

6   performance over a decision feedback equalizer, said hybrid

7   frequency-time domain equalizer comprising:

8   a frequency domain equalizer having forward

9   and feedback paths; and

10   a decision feedback equalizer decision

11   network within said feedback path of said frequency

12   domain equalizer, said frequency domain equalizer and

13   said decision feedback equalizer decision network both

14   employing a single error vector to update error

15   correction therein.

1   7.   The receiver as set forth in Claim 6 wherein said

2   decision feedback equalizer decision network further

3   comprises a decision device within said feedback path for

4   said frequency dorain equalizer.

1   8.   The receiver as set forth in Claim 7 wherein said

2   decision device employs trellis decisions to minimize

3   decoding error.

1   9.   The receiver as set forth in Claim 6 wherein said

2   decision feedback equalizer decision network further

3   comprises a time domain feedback filter within said

4   feedback path for said frequency domain equalizer.

1   10.   The receiver as set forth in Claim 6 wherein taps

2   updates for said decision feedback equalizer decision

3   network are separate from tap updates for said frequency

4   domain equalizer.

1   11. For use in a channel decoder, a method of hybrid

2   frequency-time domain equalization for improved static and

3   multi-path performance over a decision feedback equalizer

4   comprising:

5   receiving a single carrier input signal at a

6   frequency domain equalizer having forward and feedback

7   paths; and

8   employing a decision feedback equalizer decision

9   network within the feedback path of the frequency domain

10   equalizer, the frequency domain equalizer and the decision

11   feedback equalizer decision network both employing a single

12   error vector to update error correction therein.

1   12. The method as set forth in Claim 11 wherein the

2   step of employing a decision feedback equalizer decision

3   network within the feedback path of the frequency domain

4   equalizer further comprises:

5   employing a decision device within the feedback

6   path for the frequency domain equalizer.

1   13.   The method as set forth in Claim 12 wherein the

2   step of employing a decision device within the feedback

3   path for the frequency domain equalizer further comprises:

4   employing trellis decisions within the feedback

5   path for the frequency domain equalizer to minimize

6   decoding error.

1   14.   The method as set forth in Claim 11 wherein the

2   step of employing a decision feedback equalizer decision

3   network within the feedback path of the frequency domain

4   equalizer further comprises:

5   utilizing a time domain feedback filter within

6   the feedback path for the frequency domain equalizer.

1   15.   The method as set forth in Claim 11 further

2   comprising:

3   updating taps for the decision feedback equalizer

4   decision network separately from tap updates for the

5   frequency domain equalizer.

1   16. For use in a channel decoder, a hybrid frequency-

2 time domain equalizer for improved static and multi-path

3 performance over a decision feedback equalizer comprising:

4   a decision feedback equalizer having forward and

5 feedback paths; and

6   a frequency domain equalizer within said forward

7 path of said decision feedback equalizer, said frequency

8 domain equalizer and said decision feedback equalizer

9 decision network both employing a single error vector to

10 update error correction therein.

1   17. The hybrid frequency-time domain equalizer as set

2 forth in Claim 16 wherein said decision feedback equalizer

3 further comprises a decision device within said feedback

4 path, said feedback path forming a portion of a feedback

5 path for said frequency domain equalizer.

1   18. The hybrid frequency-time domain equalizer as set

2 forth in Claim 17 wherein said decision device employs

3 trellis decisions to minimize decoding error.

1   19. The hybrid frequency-time domain equalizer as set

2   forth in Claim 16 wherein said decision feedback equalizer

3   further comprises a time domain feedback filter within said

4   feedback path.

1   20. The hybrid frequency-time domain equalizer as set

2   forth in Claim 16 wherein taps updates for said decision

3   feedback equalizer are separate from tap updates for said

4   frequency domain equalizer.